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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,698	07/19/2001	Parviz Tayebati	CORE-3 CON 3	2823

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EXAMINER

SCOTT JR, LEON

ART UNIT	PAPER NUMBER
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2828

DATE MAILED: 11/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/910,698

Applicant(s)

TAYEBATI, PARVIZ

Examiner

Leon Scott, Jr.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

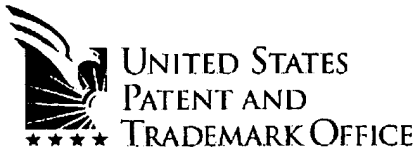
- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *T.D. not accepted*.

Leon Scott, Jr.
Primary Examiner

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As a first matter, it is noted that applicant has filed a Terminal Disclaimer to obviate applicant's own reference discovered in a search made by the examiner of record. It is further noted that applicant's IDS filed commensurate with applicant's amended response to the rejection of record fails to disclose the discovered patent. Since it is clear that applicant was aware of the patent which issued, the examiner is at a loss to understand why said reference was never disclosed to the Office. Applicant is reminded of his duty, under rule 37 CFR 1.156 to disclose all such documents to the Office.

After a further review of the amended claims based on the rejection (dated 7/18/02), it would appear that the amended claims are substantially those of the original claims; thus applicant is hereby advised that the rejection (dated 7/18/02) is hereby withdrawn in favor of the following rejections:

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 1, 11, 19 and 20 given the structure of the claim, it is not clear what structure constitutes the tunable external cavity

and waveguide or what structure make the undefined and unclaimed external cavity waveguide tunable; claims 1,11,19 and 20 are indefinite and incomplete. Further, it is not clear that the preamble of claims 1,11,19 is commensurate in scope with subject encompassed by the claim, (i.e. it is not clear what the structure is which constitutes an external cavity waveguide, since disposing a DBR adjacent any portion of the waveguide will not necessarily form an external cavity); thus applicant is required to: (a) delete the present preamble or (b) amend the present claim such that it supports the recitation of the preamble. It is not clear in lines 4 and 5 of claims 1,11 and 19 what the structure is which induces the strain field in the substrate; claims 1,11 and 19 are indefinite and incomplete. In claims 19 and 20, it is not clear that light is emitted from the device since nothing has been recited which will optically pump the laser; claims 19 and 20 are indefinite and incomplete.

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claim 1-11,16-19 and 20 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-10,12-14,17,23

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and 25 of prior U.S. Patent N . 6,041,071. This i a d uble patenting rejection.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

Application 09/910,698	U.S. Patent Number 6,041,071
Claim 1. A tunable external cavity waveguide device, said waveguide device comprising: a ferroelectric electro-optical substrate; a waveguide formed in said substrate by a strain field induced therein; a distributed Bragg reflector (DBR) disposed adjacent a portion of said waveguide; and means for applying a voltage difference across said distributed Bragg reflector.	Claim 1. A tunable external cavity waveguide device, said waveguide device comprising: a ferroelectric electro-optical substrate; a waveguide formed in said substrate; distributed Bragg reflector (DBR) disposed adjacent a portion of said waveguide; and means for applying a voltage difference across said distributed Bragg reflector, wherein said substrate has an index of refraction, wherein said waveguide is formed in said substrate by inducing a strain field within said substrate, and wherein said strain field forms graduated variations in the index of refraction of said substrate without altering the chemical composition of said substrate.
Claim 2. A tunable external cavity waveguide device according to claim 1 wherein said substrate has an electro-optic coefficient f no le	Claim 2. A tunable external cavity waveguide device according t claim 1 wherein said sub trate ha an electro-optic coefficient f no les

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than $r_{33} = 240$ pm/V and a strain-optic coefficient which is positive.	than $r_{33} = 240$ pm/V and a strain-optic coefficient which is positive.
Claim 3. A tunable external cavity waveguide device according to claim 2 wherein said substrate ha a strain-optic coefficient in the range of about 0.1.	Claim 3. A tunable external cavity waveguide device according to claim 2 wherein said substrate has a strain-optic coefficient in the range of about 0.1.
Claim 4. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises SBN.	Claim 4. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises: $\text{Sr}_x \text{Ba}_{(1-x)} \text{Nb}_2 \text{O}_6$.
Claim 5. A tunable external cavity waveguide device according to claim 4 wherein said substrate comprises SBN:61.	Claim 5. A tunable external cavity waveguide device according to claim 4 wherein said substrate comprises: $\text{Sr}_{0.61} \text{Ba}_{0.39} \text{Nb}_2 \text{O}_6$
Claim 6. A tunable external cavity waveguide device according to claim 4 wherein said substrate comprises SBN:75.	Claim 6. A tunable external cavity waveguide device according to claim 4 wherein said substrate comprises: $\text{Sr}_{0.75} \text{Ba}_{0.25} \text{Nb}_2 \text{O}_6$
Claim 7. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises PLZT.	Claim 7. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises: $\text{Pb}_{(1-x)} \text{La}_x (\text{Ti}_{(1-y)} \text{Zr}_y)_{1-(x/4)} \text{O}_3$.
Claim 8. A tunable external cavity waveguide device acc rding to claim 3 wherein said ubstrate comprise LiNb_3 .	Claim 8. A tunable external cavity waveguide device acc rding to claim 3 wherein aid ub trate c mpri es: LiNb_3 .

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<p>Claim 9. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises LiTaO_3.</p>	<p>Claim 9. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises: LiTaO_3.</p>
<p>Claim 10. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises BaTiO_3.</p>	<p>Claim 10. A tunable external cavity waveguide device according to claim 3 wherein said substrate comprises: BaTiO_3.</p>
<p>Claim 11. A tunable external cavity waveguide device according to claim 1 wherein said substrate has an index of refraction wherein said waveguide is formed in said substrate by inducing a compressive strain field within said substrate, and wherein said compressive strain field forms graduated variations in the index of refraction of said substrate.</p>	<p>Claim 17. A tunable external cavity waveguide device according to claim 1 wherein said substrate has an index of refraction wherein said waveguide is formed in said substrate by inducing a strain field within said substrate, and wherein said strain field forms graduated variations in the index of refraction of said substrate in such a way that the affected area has a different index of refraction than the remainder of said substrate, thereby forming an optical waveguide.</p>
<p>Claim 16. A tunable external cavity waveguide device according to claim 1 wherein said substrate, comprises a flat surface, and said waveguide device further comprises a layer of material deposited onto said flat</p>	<p>Claim 12. A tunable external cavity waveguide device according to claim 1 wherein said substrate comprises a flat surface, and further wherein a layer of material is deposited onto said flat surface, said layer of material comprising a</p>

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<p>urface, said lay r of material comprising a ferroelectric electro-optical material having a larger index of refraction than said substrate.</p>	<p>f rroele tric lectro- ptical material having a larger index of refraction than said substrate.</p>
<p>Claim 17 A tunable external cavity waveguide device according to claim 1 wherein said waveguide device further comprises phase control means for selecting a cavity mode.</p>	<p>Claim 13. A tunable external cavity waveguide device according to claim 1 wherein said waveguide device further comprises phase control means for selecting a cavity mode.</p>
<p>Claim 18 A tunable external cavity waveguide device according to claim 17 wherein said phase control means comprise means for applying a voltage difference across a portion of said waveguide.</p>	<p>Claim 14 A tunable external cavity waveguide device according to claim 17 wherein said phase control means comprise means for applying a voltage difference across a portion of said waveguide.</p>
<p>Claim 19. An external cavity mirror disposed relative to a semiconductor laser for directing a portion of the emitted laser light back into an optically active region of said semiconductor laser, said external cavity mirror comprising a substrate comprising a ferroelectric electro-optical material, a waveguide disposed in said substrate by a strain field induc d therein, and an el ctro-optically tunable di tributed Bragg reflect r (DBR) di po d adjacent a</p>	<p>Claim 23. An external cavity mirror disposed relative to a semiconductor laser for directing a portion of the emitted laser light back into an optically active region of said semiconductor laser, said external cavity mirror comprising a substrate comprising a ferroelectric electro-optical material, and an electro-optically tunable distributed Bragg reflector (DBR) formed on said ub trate, wherein said porti n of emitted la er light directed back into said optically active</p>

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portion of said waveguide, wherein said portion of emitted laser light is directed back into said optically active region of said semiconductor laser as a function of a predetermined external voltage difference selectively applied across said distributed Bragg reflector (DBR).

region of said semiconductor laser as a function of a predetermined external voltage difference that is selectively applied across said distributed Bragg reflector (DBR), wherein said substrate has an index of refraction, wherein said waveguide is formed in said substrate by inducing a strain field within said substrate and wherein said strain field forms graduated variations in the index of refraction of said substrate without altering the chemical composition of said substrate.

Claim 20. A semiconductor laser comprising: an active section of a diode which emits light over a bandwidth around a given center frequency; an external cavity mirror bounding one end of said active section; and a partially reflective mirror bounding a deposited end of said active region; said external cavity mirror being disposed relative to said active region for directing a selected portion of said light back into said active region, said external cavity mirror comprising a substrate comprising: a ferroelectric electro-optical substrate; a

Claim 25. A semiconductor laser comprising: an active section which spontaneously emits light over a bandwidth around a some center frequency; an external cavity mirror bounding one end of said active section; and a partially reflective mirror bounding a opposite end of said active section; said external cavity mirror being disposed relative to said active section for directing a selected portion of said light back into said active section, said external cavity mirror comprising a substrate comprising: a ferroelectric

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waveguide formed in said substrate by a strain field induced therein; a distributed Bragg reflector (DBR) formed on said substrate; and means for applying a voltage difference across said external cavity mirror.

electro-optical substrate; a waveguide formed in said substrate; a distributed Bragg reflector (DBR) formed on said substrate; and means for applying a voltage difference across said external cavity mirror, wherein said substrate has an index of refraction, wherein said waveguide is formed in said substrate by inducing a strain field within said substrate and wherein said strain field forms graduated variations in the index of refraction of said substrate without altering the chemical composition of said substrate.

When one views the claims of the application in light of the claims of the patent, it is clear that the patent encompasses all the features of the application.


Applicant's arguments with respect to claim*1-20 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leon Scott, Jr. whose telephone number is 703-308-4884. The examiner can normally be reached on Monday - Friday, 6:30am - 5:00pm.

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If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul P. Ip can be reached on (703)308-3098. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7721 for regular communications and 703-308-2864 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.


Leon Scott Jr.
Primary Examiner
Leon Scott Jr.
Primary Examiner
Art Unit 2828

Isjr

July 26, 2003